

THE OCCURRENCE OF BREEDING ROSEATE TERN, *STERNA DOUGALLI*, AT LANCELIN ISLAND, WESTERN AUSTRALIA

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INTRODUCTION

The Roseate Tern is a species representative of the tropical (Dampierian) seabird fauna. Recent observations indicate that the species is extending its breeding range southward along the west coast of Australia. This is a trend which has already been pre-empted by two other seabirds of tropical origin, the Bridled Tern, *Sterna anaetheta* and the Red-tailed Tropic-bird, *Phaethon rubricaudus* (Serventy, D.L. *et al.*, 1971).

Until recently the Abrolhos group of islands were held to be the Roseate Tern's southernmost nesting locality. In April 1960 a nesting colony of this species was discovered at the Green Islets, thus extending southward the southern limit of the breeding range (Serventy and Whittell, 1976). The investigations of Ford (1965) on the avifauna of the islands between Lancelin and Dongara established a number of additional breeding stations between the Green Islets and Dongara.

Spring and autumn nesting has been recorded in the range bounded by the Abrolhos in the north and Green Islets in the south. A double nesting is reported from the Abrolhos (Serventy *et al.*, 1971) and from the Green Islets and Whittell Island (Ford, 1965). Autumn nesting alone has been recorded from Cervantes and Fisherman Island and only spring nesting from Buller and Beagle Island (Ford, 1965). This nesting regime suggests that there are both spring and autumn breeding populations of the Roseate Tern within the region. This species, in particular, has a tendency to shift its nesting location from one year to the next and a number of alternative stations may be used by a given nesting group (Serventy *et al.*, 1971).

OBSERVATIONS

Prior records of the Roseate Tern at Lancelin Island consist of two sequel observations. The first was of eight birds in nuptial plumage flying around the island on November 18, 1962 and the second was of two birds in flight on December 30 of the same year (Ford, 1965).

On November 22, 1975 the author discovered the species nesting on the island. There were two distinct colonies. One was located on the plateau in the north-western part of the island and overlooked the western beach, the second was located on the periphery of the southern plateau on the crown of aeolianite cliffs over-looking the ocean. The colonies were linear, the unevenly spaced nests being confined to the narrow, bare travertine lip of the limestone plateaux. An irregularity in the micro-topography of the cliff top partitioned the southern colony into two nesting groups. Behind each colony, towards the interior of the plateaux, stands of the mat shrub *Frankenia pauciflora* served to conceal the nesting birds.

The northern colony consisted of from 30 to 35 nesting pairs and the two groups making up the southern concentration each numbered approximately 20 nesting pairs. All nests in both northern and southern colonies contained eggs (i.e. no nestlings were evident). One and two-egg clutches were common and one clutch of three was noted in the southern colony (this clutch may have included an egg from another nest). The eggs were a pale green ground colour with irregular, bold dark brown blotches sometimes aggregated to form crescents and lines. Lighter brown and grey shadow markings were also evident. The markings on the egg of the Roseate Tern were noticeably bolder and larger than the flecks on the egg of the Bridled Tern, a species which was nesting at the same time.

Simple nests were constructed in shallow recesses in the limestone or placed on shelves in the rock. A scrape would be excavated where there was a shallow soil. In some situations the scrape or natural recess was left unlined, in others nesting materials had been utilised. One scrape on a limestone shelf was studied closely. It was lined with radially oriented woody twigs of *Nitraria schoberi* and *Lavatera plebiae* and its walls were bolstered, on the sides where the ground sloped away, by a collection of materials including shell fragments, limestone pebbles and the dead pliable stems of *Gasoul crystallinum*. Many nests were poorly lined recesses surrounded by the carpeting annual growth of *G. crystallinum*.

The birds were extremely excitable and the author was cautious not to prolong his investigations of the nesting colonies to the extent that breeding success was endangered. A silent aerial 'dread' was observed.

On February 14, 1976 the author re-visited the island. Two adults in eclipse and a fledgling were observed on the edge of the sandspit in the south-eastern part of the island. An adult and fledgling were also observed on the western side of the island (these may in fact have been the same birds). When breeding the adults had black bills, red at the base. In the eclipsing adults the bills had turned wholly red.

In the following spring, on November 6, 1976 two pairs in nuptial plumage and displaying in paired courtship flight were observed. There was however no evidence of the species having nested that spring when the author surveyed the island on December 23, 1976. Nesting may have been prevented by changes induced by the birds themselves. A profusion of the succulent annual *Gasoul crystallinum* had occurred and the plant now covered much of the previously denuded travertine lip. Nesting materials introduced by the birds probably contributed a shallow soil facilitating the invasion by the annual, the growth of which was further stimulated by the guano accumulation.

In early December 1977 Rob Holmes of the University of Western Australia observed a small breeding colony of Roseate Terns in the north-west corner of the island.

DISCUSSION

The observations indicate that Roseate Terns in breeding condition are present by early November, probably with some regularity, in the waters off Lancelin. When nesting occurs on the island laying commences by about the middle of November. Laying synchrony was apparent both within and between nesting groups. Thus, at Lancelin, the laying period of the Roseate Tern probably slightly overlaps with the latter stages of that of the Bridled Tern. The timing of breeding is consistent with that of spring breeding populations at the Abrolhos Islands and probably also with that of similar populations in the region between the Green Islets and Dongara. It seems probable that the contingent of birds which nested on Lancelin Island in 1975 originated from one of these populations.

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